

For brevity, Applicant expressly incorporates the prior arguments presented in the January 23, 2002 response without a literal rendition of those arguments in this response.

As previously discussed in our January 23, 2002 response, the Paik et al. patent is directed to:

- (1) determining by estimation which concept category a word in a query belongs, according to a CRC (concept-relation-concept) scheme; and
- (2) creating a query of a knowledge representation (KR) format, based on "concepts" determined by estimation according to the CRC scheme.

As the Examiner states, the query created in (2) according to the CRC scheme is a "Who-What-Where-When-Why How" question to which the system is capable of responding. According to Paik et al., from an original part of speech in a query (sentence), a part of speech (concept) is derived that is related to the original part of speech. The relation is an intra-sentence relation.

For the purpose of comparing the present invention with Paik et al., the following example will be analyzed.

"McDonald at Los Angeles Airport is a fast-food shop located in the lobby of Los Angeles Airport, where anybody including tourists and people meeting the tourists can feel free to stop at to eat hamburgers to kill time"

"Kentucky at Los Angeles Airport is a fast-food shop located in a hotel near Los Angeles Airport where anybody including people staying at the hotel can stop at to eat fried chicken attending a meeting"

Analyzing the sentences according to the CRC scheme of Paik et al. would produce the following results.

Since "McDonald at Los Angeles Airport" is "animate," relations such as AFFL, AGNT, EXPR, INIT, ISA, POSS, RCPT will mainly be identified according to Paik et al.

<concept>	<relation>	<concept>
McDonald at Los Angeles Airport	ISA	fast-food shop
McDonald at Los Angeles Airport	LINK	anybody
McDonald at Los Angeles Airport	LINK	tourists
McDonald at Los Angeles Airport	LINK	people seeing the tourists
McDonald at Los Angeles Airport	LINK	eat
McDonald at Los Angeles Airport	LINK	kill time
McDonald at Los Angeles Airport	LINK	feel free to stop at
McDonald at Los Angeles Airport	LOC	Los Angeles Airport
McDonald at Los Angeles Airport	LOC	lobby of Airport
McDonald at Los Angeles Airport	LINK	hamburgers

Thus, a concept (in this case the part of speech "McDonald at Los Angeles Airport") is related to other parts of speech (concepts).

<concept>	<relation>	<concept>
Kentucky at Los Angeles Airport	ISA	fast-food shop
Kentucky at Los Angeles Airport	LINK	anybody
Kentucky at Los Angeles Airport	LINK	people staying at the hotel
Kentucky at Los Angeles Airport	LINK	eat
Kentucky at Los Angeles Airport	LINK	meeting
Kentucky at Los Angeles Airport Airport	LOC	Los Angeles
Kentucky at Los Angeles Airport	LOC	hotel near Airport
Kentucky at Los Angeles Airport	AFFL	fried chicken

Thus, a concept (in this case the part of speech "Kentucky at Los Angeles

Airport") is related to other parts of speech (concepts).

The present invention would work in the following manner.

Categorizing a sentence object "McDonald at Los Angeles Airport" (simply referred to as "McDonald" in the table below) according to the present invention,

<object>	<category>	<attribute word>
McDonald	object of action	fast-food shop
McDonald	agent of action	anybody
McDonald	agent of action	tourists
McDonald	agent of action	people seeing the tourists
McDonald	action	eat
McDonald	action	kill time
McDonald	action	feel free to stop at
McDonald	object of action	Los Angeles Airport
McDonald	object of action	lobby of Airport
McDonald	text	hamburgers
	(object of action)	

Analyzing a sentence object "Kentucky at Los Angeles Airport" (simply referred to as "Kentucky" in the table below) according to the present invention, results in,

<object>	<category>	<attribute word>
Kentucky	object of action	fast-food shop
Kentucky	agent of action	anybody
Kentucky	agent of action	people staying at the hotel
Kentucky	action	eat
Kentucky	action	meetings
Kentucky	object of action	Los Angeles Airport
Kentucky	object of action	hotel near Airport
Kentucky	text	fried chicken

<object> <category> <attribute word>
 (object of action)

An exemplary comparison will be made between a result of the search in Paik et al. and that of the present invention, assuming that a request for the search is placed by "a tourist at Los Angeles Airport wanting to eat hamburgers."

In response to the request, concepts (attribute words) including tourists," "Los Angeles Airport," "hamburgers," and "eat" are extracted.

The results according to Paik et al. show that keywords including "tourists," "Los Angeles Airport" and "eat" are only related to the concept in a LINK relation. Therefore, the selection should be made from keywords including "anybody," "tourists," "people seeing the tourists," "eat," "kill time," "feel free to drop at," "people staying at the hotel" and "meetings" associated with a variety of parts of speech. The only keyword that can be identified from the search in the first sentence according to Paik et al. is "hamburgers" related to the concept in the AFFL relation, so that a selection should be made from "fried chicken" and "hamburgers." According to Paik et al., in a majority of cases, keywords that produce a match should be identified by selection from a not-so-unique set of parts of speech having the LINK relation.

According to the present invention, "tourists" has an agent of action category, "Los Angeles Airport" has an object of action category, "hamburgers" (text) has an object of action category and "eat" has an action category.

A searcher is capable of selecting a match with the attribute of the searcher himself or herself, from a group of "agent of action" category including "anybody,"

"tourists," "people seeing the tourists" and "people staying at the hotel."

The searcher is also capable of selecting a match with what the searcher would like to do, from a group of "action" category including "eat," "kill time," "feel free to stop at" and "meetings."

The searcher is also capable of selecting a match with the situation in which the searcher is in, from a group of "object of action" category including "Los Angeles Airport," "lobby of Airport" and "hotel near Airport."

In the present invention, objects are categorized according to natural language sentence elements in a sentence expressing a request of the searcher. Therefore, it is easy to identify a keyword to be retrieved from the search. Moreover, morphological elements of a sentence expressing the request of the searcher may be analyzed so as to extract objects.

The mere presence of the term "phrasal verb" in Paik et al. does not justify the reasoning that the one with the ordinary skill in the art is led to the invention as described above and detailed in the application. On the contrary, the very use of the term "phrasal verb" instead of "verb" may be considered as an indication that Paik et al. only had "nouns" in mind.

SUMMARY

For at least the foregoing reasons and the example presented above, as well as the comments submitted in the January 23, 2002 response, it is respectfully submitted that claims 1-3 and 5-7 are distinguishable over the applied art and therefore allowable.

CONCLUSION

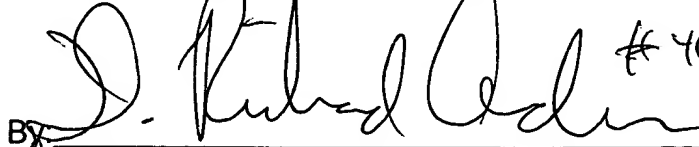
All objections and rejections raised in the Office Action having been addressed, it is respectfully submitted that the present application is in condition for allowance and such allowance is respectfully solicited. Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact John L. Ciccozzi, Reg. No. 48,984, at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

Pursuant to 37 C.F.R. §§ 1.17 and 1.136(a), Applicant respectfully petitions for a one (1) month extension of time for filing a reply in connection with the present application, and the required fee of \$110.00 is attached hereto.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,

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